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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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08/949,988 10/14/97 YUNG

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PATENT DOCKET ADMINISTRATION
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EXAMINER

DINH, T

ART UNIT

PAPER NUMBER

3644

DATE MAILED:

06/19/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/949,988

Applicant(s)
Yung et al

Examiner
T. Dinh

Group Art Unit
3644



☒ Responsive to communication(s) filed on May 9, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-19 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-19 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☒ The proposed drawing correction, filed on Mar 20, 2000 is ☒ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

PETER M. POON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

PmP
6/15/00

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 11, "the tilted trajectory" lacks antecedent basis.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Draim in view of Westerlund, Uphoff, or Dulck.

Draim discloses that a satellite constellations covering a specific geographical area but is silent on the tilting the trajectory to reorient the constellations to cover a second coverage.

However, Westerlund teaches that tilting satellites to "reorient" the satellite constellation to cover various geographical areas are well known in the art. In addition, Dulck discloses that modifying

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the trajectory of the orbit 04 by “tilting” is well known in the art (see figure 3 also see figure 2). Furthermore, Uphoff discloses that various tiltings of the satellite trajectory to accomplish certain missions are well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have tilted the trajectory of certain satellite(s) in the constellations of Draim as taught by Westerlund, Uphoff, or Dulck to maximize the coverage area of the desired geographical area.

As for the determining the “period of rotation” and determining the time coverage of the constellation based on the period of rotation and the trajectory of the desired satellite, please note that these are inherent steps that one skilled in the art would take so that the desired positions of the satellite can be accomplished to prevent the satellite from being lost and to maximize the coverage.

As for the programming of the computers on the satellite or sending command signals to the satellite and using simulations, please note that in today’s day and age, these topics are well known to be used in the aerospace field.

As for the equations and the rotation matrices, please note that these are basic, inherent equations that one skilled in the art would have used to determine the period of rotations.

As for the newly added limitation of the amended claims, please note that “relative configuration” is a broad term. The interpretation of “relative configuration” here can be how the solar panels or antennas are employed with respect to the satellites. In addition relative

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configuration can be how it is shaped. Obviously when there is a tilt in the trajectory, the shape doesn't change, which meets the limitation of the claims.

Response to Amendment

In response to applicant's argument concerning the Westerlund reference, please see the figures 5 and 7A. It clearly shows that by tilting the orbits of the satellite, it is inherent that certain coverage is accomplished. One skilled in the art would recognize that a geostationary and polar orbits are different orbits that cover certain geographic area. The Examiner used the Westerlund reference to show that "tilting" the orbits is well known to one skilled in the art. This clearly leads one skilled in the art to modify Draim's orbits as taught by Westerlund to cover certain geographical area. The Examiner has dropped the teaching of Fowell. Please note the new arts to once again show that tilting the trajectory of orbit is well known in the art to accomplish certain missions and to cover certain area of the Earth. The tilting of orbits is nothing new. Please see any textbooks on Orbital Mechanics.

As for the argument concerning the terms "relative configuration", the terms themselves are broad. The Examiner must have the broadest interpretation of the claimed language. The Draim reference clearly shows that the satellites have a "relative configuration" within the satellite constellation which meets the limitation of the claims. Furthermore, page 8, lines 6-8, states "This is achieved by tilting, or reorienting, the satellite constellation around the y axis in the equatorial plane, as shown at block 26." This said nothing about the "aspect that the satellites within the

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constellation maintain the same orbits relative to each other..." These lines seem to say nothing about the specialty of the terms "relative configuration."

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Goschel discloses a satellite system that uses control means to change to trajectory of the satellite. Please note that one skilled in the art should recognize that tilting the orbit of a satellite is well known in the art.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tien Dinh whose telephone number is (703) 308-2798. The examiner can normally be reached on Monday thru Friday from 8 A.M. to 5 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, P. Poon, can be reached on (703) 308-2574.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1113.



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T. Dinh

June 9, 2000

